

REPRODUCTIVE

Quarterly

NEWSLETTER OF THE REPRODUCTIVE HEALTH PROGRAM
UTAH DEPARTMENT OF HEALTH

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Message From The Editor

Debby Carapezza, R.N., C.F.N.P.

Congratulations - You have made it through all of the Y2K hype!! Now it's back to business as usual. Speaking of which.....

I wanted to remind everyone that we (the folks here at the Reproductive Health Program) always welcome your comments and suggestions regarding the newsletter and encourage you to submit articles for publication in it. We'd love to hear about your programs, patient education materials, innovations, etc. Remember that you can also submit announcements for inservices, seminars, conferences, etc. The newsletter goes out on the 15th of April, July, and October. To give me time to edit and format the newsletter, I need your announcements one month to two weeks before those mailing dates. This is a FREE SERVICE!!! Just be sure if you submit something to include your name, address, and a number at which you can be contacted in case I need to clarify something. My address, phone number and e-mail address are included on the back page of this newsletter.

My empty mailbox is eagerly awaiting your submissions!

In case you haven't heard it enough already – HAPPY NEW YEAR, New Century, and, depending on how you want to count it, New Millennium!!



Anna's Surfing Secrets

... Don't worry. You can't break the internet. . .

Anna West, C.H.E.S.

Now that you know how to use the internet, it is important to discuss finding credible sources on the internet. There is a lot of good information out there, but there is also a lot of misinformation!

Why do I have to be careful?

No one reviews websites for accuracy or validity. It is up to you to keep the good material and to throw out the inaccurate information!

How do I find good sources of information?

Pay attention to the following when evaluating an information source:

- With whom are the authors affiliated? Look for websites that are affiliated with a credible organization and an author with credentials. Also, look for organizations you already know and trust. Most have a website.
- Check for bias and accuracy! Look for references and be aware of political, religious, and cultural bias. For example, a site published by R. J. Reynolds may not be the best place to learn about the dangers of smoking. A good site should be well written. Beware of too many typing and spelling errors.
- Is the site up-to-date? Some sites state when the last update occurred. If the date of last update is not specified, compare the information with other sources to see if it is current.
- Is the site well done? The site should be well put together and organized. If the site contains many typing and

spelling errors, or is poorly written, it may not be the best source of information.

- Is the author trying to sell you something? Some sites exist to provide information, others exist to persuade or to promote a product. Make sure the site you are viewing suits your needs.
- Is the internet the best source of information to do the job? While the internet is a great tool, it might not be the best tool for the job you are trying to accomplish. You might already have a book, journal or other reference sitting on your desk. Other times, the internet might be the best resource.

Check out these health resources on the internet:

- The Reproductive Health Program: www.utahrhp.org
- Utah Data and Statistics:
<http://hlunix.hl.state.ut.us/matchiim/main/>
- Centers for Disease Control and Prevention: www.cdc.gov

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A Weighty Matter: Prepregnancy Body Mass Index and Pregnancy Outcome

Anna West, M.S., C.H.E.S., Gulzar Shah, M.S.S., M.Stat.,
Ph.D., and Brenda Ralls, M.S.

Prepregnancy body mass index (BMI), defined as weight in kilograms divided by height in meters², can be used as a marker of a woman's prepregnancy nutrition status.¹ Both a high

prepregnancy BMI as well as a low prepregnancy BMI are associated with pregnancy complications and poor outcomes when compared with normal BMI women.^{2,3} National research has found that high prepregnancy BMI is associated with outcomes such as cesarean section (c-section) delivery, neural tube defects, large for gestational age infants, intrauterine growth retardation, and late fetal death.^{2,4,5,6,7} Research has also found low prepregnancy BMI is associated with low birth weight, preterm birth, and retarded fetal growth.^{2,7,8}

Women with a high prepregnancy BMI are often older, with greater parity. Women with a lower BMI are often Asian/Pacific Islander or White, and tend to be younger than women with a normal or high BMI.⁹ Prevalence of prepregnancy overweight has increased in the U.S. from 30% in 1989 to 36% in 1996, while prepregnancy underweight has decreased from 19% to 16% during the same time period.¹⁰

In this paper, a study of the relationship between prepregnancy BMI and preterm birth, low birth weight, and cesarean delivery will be presented based on Utah birth records for 1998. In Utah during 1998, 20.2% of women who gave birth in Utah had a low prepregnancy BMI, while 11.2% had a high prepregnancy BMI. In this study a low prepregnancy BMI was defined, according to WIC guidelines, as less than 19.8 kg/m², and a high prepregnancy BMI was defined as greater than or equal to 26 kg/m². Table 1 presents the percent of these outcomes that occurred in 1998 among all Utah births, mothers with a low prepregnancy BMI, and mothers with a high prepregnancy BMI.

Table 1. The Percent of Preterm, Low Birth Weight, and C-Section Deliveries among All 1998 Utah Births, Mothers with Low Prepregnancy BMI, and Mothers with High Prepregnancy BMI.

Population	Preterm	Low Birth Weight	C-section
All Utah Births	8.6%	5.3%	14.8%
Low Prepregnancy BMI	10.4%	7.6%	10.6%
High Prepregnancy BMI	8.7%	4.9%	27.0%

Methods

Data were drawn from the 1998 birth certificates from the Utah Department of Health. Logistic regression models were analyzed using preterm births, low birth weight births, and c-section deliveries as dependent variables. A host of maternal characteristics were included in each model as independent factors: prepregnancy body mass index; parity; mother's age; ethnicity, short stature; and smoking behavior during pregnancy.

Results

Women with a low BMI were about 30% more likely to deliver preterm than women with a normal or high BMI, $p=0.0001$. High BMI was not statistically significantly related to preterm birth. Women who smoked, had fewer years of education, or were of short stature (less than 62 inches tall) were statistically significantly more likely to deliver preterm, $p=0.0001$. Ethnicity did not appear to affect the risk of preterm birth.

Utah women with a low prepregnancy body mass index were 60% more likely to have a low birth weight birth as compared to women with a normal or high BMI, $p=0.0001$. High BMI did not appear to have a statistically significant impact on low birth weight. Being of short stature doubled the low birth weight risk, as did smoking, $p=0.0001$. Education appeared to be protective against low birth weight, $p=0.0001$. Ethnicity did not appear to affect the risk of LBW.

Utah women with a low prepregnancy BMI had a statistically significantly reduced risk of c-section delivery, $p=0.0001$. Women with a high BMI had nearly double the risk for c-section delivery, $p=0.0001$. Older mothers were 50% more likely to have a c-section delivery, $p=0.0001$; and short mothers (62 inches tall or less) were 80% more likely to deliver by c-section than mothers who were taller than 62 inches, $p=0.0001$. Smokers were also about 30% more likely to have a c-section delivery when compared with non-smokers, $p=0.0001$. Ethnicity did not appear to affect the risk of c-section delivery.

Conclusions

According to Utah birth data, prepregnancy BMI impacts birth outcomes, including preterm delivery, low birth weight, and c-section delivery. Utah women with a low prepregnancy BMI had an increased risk of preterm delivery and low birth weight. High prepregnancy BMI was associated with c-section delivery. Women who smoked during pregnancy, or who were short, were at an increased risk of preterm delivery, low birth weight birth, and c-section delivery. Increased education appeared to reduce the risk of preterm and low birth weight births.

Previous research conflicts with the finding that high prepregnancy BMI is not related to preterm birth. In a prospective study of hospital records, researchers found an increased risk of perinatal mortality in infants of obese mothers. This increased risk was primarily due to preterm delivery, occurring before 31 weeks of gestation.¹¹ Much of this increase in preterm delivery among obese mothers was attributed to chorioamnionitis, or infection of the chorion, amnion, and amniotic fluid.^{11, 12} Future research warrants closer examination of the relationship between maternal prepregnancy BMI and preterm birth occurring before 31 weeks gestation.

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Breastfeeding -- Effective Birth Control?

CharLynn Hansen, B.S. Candidate

Myth – Women cannot get pregnant if they are breastfeeding.

Fact – Breastfeeding does not protect a woman 100% from becoming pregnant.

Under certain circumstances, breastfeeding may be 98% effective in preventing pregnancy. However, the rigors required to achieve this success rate may be too stringent to be practical or achievable for most nursing mothers. Therefore, while breastfeeding provides some protection from pregnancy, it may not be the best form of contraception for working women, women who supplement, and women who do not remain amenorrheic. Breastfeeding as a form of contraception may be more suitable for women of third world countries or women who don't have access to other methods of contraception.

In 1988, a group of interdisciplinary international researchers meet to decide how breastfeeding could be used as an effective method of Natural Family Planning. They found that the Lactational Amenorrhea Method (LAM) is 98% effective for the

first six months as a form of family planning.^{1,2} Under LAM, the nursing mother must:

- 1) Be fully or nearly fully breastfeeding.
- 2) Limit supplemental feedings for the first six months after delivery.
- 3) Remain amenorrheic.

Unless all of the guidelines are followed, the risk of pregnancy increases. These guidelines are discussed in depth below.

1) Fully Breastfeeding

Defining fully or nearly fully breastfeeding can be a challenge. The definition varies widely. As a general rule, breastfeeding must continue for at least six months—day and night with no more than four hours between feedings.³ The woman must be fully or nearly fully breastfeeding at least 10 short or 6 long breastfeeds within a 24-hour period.⁴

This fully or nearly fully breastfeeding provides maximum suckling stimulation and decreases the chance of ovulation.⁵ Pacifiers should not be used.² They decrease stimulation of the nipple by the baby. Pumping is not effective.⁵ Pumping is an excellent source of nutrition for the baby, and also continues breast milk production. However, it does not offer the same protection from pregnancy, because there is no stimulation of the infant suckling.

Protection is also decreased in working mothers. Effective protection requires the baby to suckle on demand. Mothers who return to work within the first six months, can rarely provide this. The feeding schedule is often worked around and changed to fit the mother's schedule. The periods between each feeding could be too long decreasing the effectiveness against pregnancy. Additionally, pumping is usually required. As a result, the baby is not allowed to suckle on demand.

Finally, lack of experience, or little education on the guidelines of proper breastfeeding impairs the protection.

For all of these reasons, it is difficult to be fully or nearly fully breastfeeding.

2) Limit Supplemental Feedings

The 1998 Centers for Disease Control and Prevention's Pediatric Nutrition Surveillance Data System reported that of all infants born between January 1st through December of that year, only one-third were still breastfed at six months of age. At one day of age, 76.2% of mothers were nursing. Of those mothers who were nursing when they left the hospital, only 57% were still nursing at three months and only 43.4% at six months.⁶ This study shows that of nursing mothers, 43% were supplementing at three months and 56.6% were supplementing at six months. Once supplements are introduced, breastfeeding may not occur frequently enough to prevent ovulation. Therefore, supplementing may increase the risk of pregnancy and another form of contraception should be used.

As a result, early supplementation is a concern when using LAM for family planning. If a woman is using LAM as the primary source of birth control, supplements should be regulated. If supplementation is introduced into the infant's diet, it should consist of no more than 5-15% of intake.³

Supplements should be given only infrequently, in small amounts, and not by a bottle. Mothers should follow these guidelines for supplementing in order to increase LAM's effectiveness:

- breastfeed first, before offering solids,
- introduce solids gradually, and
- continue to breastfeed unrestrictedly at night.³

It is important to note that the protection against pregnancy must be balanced with risk to the child's health.

3) Remain Amenorrheic

To ensure maximal effectiveness of LAM, the mother must remain amenorrheic, not having a menstrual cycle return after the 56th day postpartum.¹ Bleeding before the 56th postpartum day can be ignored.² However, if menses return after the 56th day, the risk of ovulation increases and breastfeeding alone will not provide adequate protection against pregnancy. Therefore, LAM is contraindicated and another birth control method should be used.

In conclusion, while breastfeeding is the best form of nutrition for the baby, it may not be the best form of birth control for parents. Rigorous guidelines of fully or nearly fully breastfeeding, limiting supplements, and remaining amenorrheic must be followed. This method is difficult to use, and may be contraindicated for working mothers, women who supplement, and women who do not remain amenorrheic. Therefore, this method's best application is for women who do not believe in using other methods of contraception, or for women who do not have other methods available. For example, this method is most often applied in third world countries when family planning methods are difficult to obtain. For women who have difficulty in maintaining all the guidelines, a back up method of contraception is recommended.

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The new Utah Department of Health *Report on Low Birth Weight in Utah* is completed and available on the Internet at our website: www.utahrhp.org

Some Thoughts on the Past and Present as the New Year and Millennium Begins

Anna West, M.S., C.H.E.S.

As the new year and new millennium begin, it is interesting to look at some of the strides that have been made in maternal and infant mortality reduction in the past 200 years and at the reduction in SIDS deaths in the past decade. During the 19th century, 1 in 5 new mothers died. In 1907, 17 out of every 100 babies died. Because of developments in medicine such as hand washing, sterilization of instruments, prenatal care, immunizations, and more recently, innovations like ultrasound and fetal heart rate monitoring, maternal and infant mortality rates have decreased significantly. In contrast with the 19th century and early 20th century, during 1997, 7.5 out of every 100,000 new mothers and 7.2 out of 1,000 babies died. Happily, in just the past 10 years, there has been another significant decrease in infant mortality due to the reduction in SIDS rates. The intervention responsible for this decrease in infant deaths, like hand washing, is simple and low cost – placing a baby to sleep on her back. Since 1994 when the Back to Sleep Campaign began, the SIDS rates have decreased by almost half – primarily because of back sleeping.

It is hoped that in this new millennium more knowledge of SIDS will be gained and more lives will be saved. In the meantime, there are still many child care providers – parents, grandparents, daycare providers, babysitters, etc. – who are still unaware of the benefits of back sleeping for infants. So keep on spreading the back to sleep message. It is making a difference!

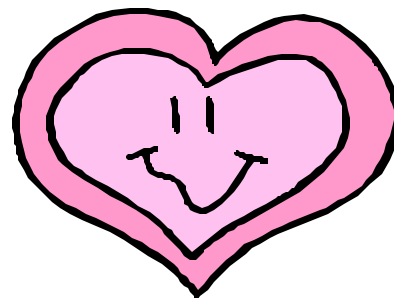
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Now that you have started your shiny new 2000 calendar, flip it over to April and block out **April 7th, 8th, 9th, and 10th**. These are the dates for the **2000 National SIDS Alliance Conference** to be held **in Salt Lake City!!** The conference runs the 8th through the 10th with pre-conference sessions to be held on the 7th. For more information check out the SIDS Alliance website www.sidsalliance.org or call 1-800-221-7437. See you there!



Review of "Late Term" Fetal Deaths, Utah, 1996-1997

Lois Bloebaum R.N., B.S.N.

The Perinatal Mortality Review Program (PMRP*), of the Utah Department of Health (UDOH) reviewed all late term fetal deaths (35 weeks or greater) that did not have a lethal anomaly and occurred in Utah during the years 1996 and 1997. Of the 453 fetal deaths occurring during this period, 132 of these met the PMRP criteria for review. This represents approximately 29% of all fetal deaths during these years.

The definition of fetal death by the UDOH, Bureau of Vital Records is "a product of human conception: (a) of 20 weeks' gestation or more, calculated from the date the last normal menstrual period began to the date of delivery; and (b) that was not born alive."¹ The average fetal death ratio (fetal deaths per 1000 live births) in Utah during 1996 and 1997 was 5.3/1000. The Healthy People 2000 Objectives include the recommendation to reduce the fetal death ratio to no more than 5 per 1000 live births.² The PMRP undertook the review of fetal deaths in order to identify public health strategies which may reduce the fetal death ratio.

The ages of mothers in the fetal death review ranged from 16 to 43 years with a mean of 28 years. Age specific fetal death ratios were highest among women 40-49 years of age (4.8/1000), (Figure 1). In the review, approximately 82% of mothers experiencing fetal deaths began prenatal care during the first trimester of pregnancy. This is similar to the entire birth population in Utah during this time period. A very small percentage of mothers included in the study group received late (3rd trimester) or no prenatal care (3.2%).

Figure 1**

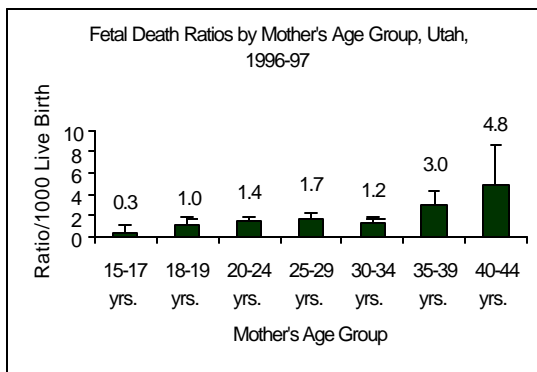
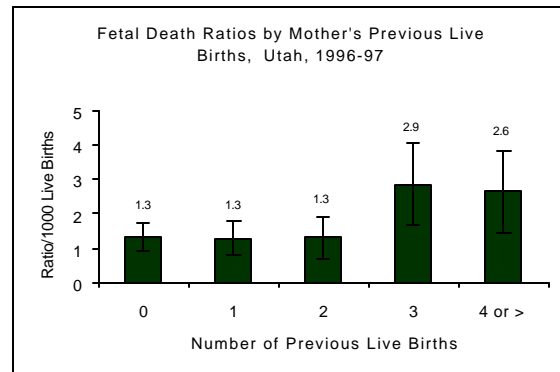


Figure 2**



**Source: Perinatal Mortality Review Program Databases, Utah Department of Health

Fetal death ratios by mother's county of residence indicate that women living in rural Utah counties had a higher ratio of fetal deaths (1.9/1000) compared to those living in urban counties (1.4/1000). This increased risk may be due to lack of access to obstetricians in rural Utah. More than half of rural Utah counties (16 out of 29) are without any obstetrician.³

Fetal death ratios were found to be higher among women with 3 or more previous live births (Figure 2). Additional statistical analysis is needed to determine if this variable is confounded by maternal age.

Approximately 27% of fetal deaths reviewed occurred in mothers whose body mass index (BMI) was rated as "high" or "obese"(Figure 3). This finding requires further research in light of the recently published findings of higher maternal weight before pregnancy increasing the risk of late fetal deaths.⁴

Figure 3**

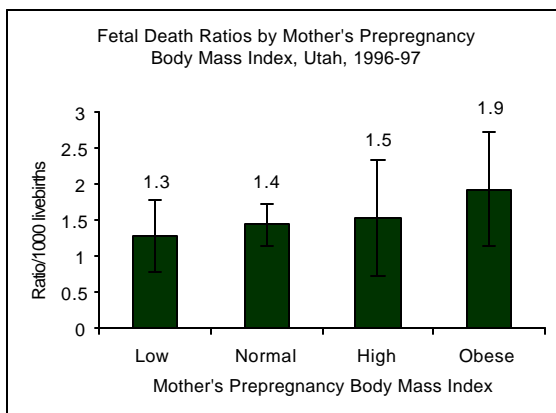
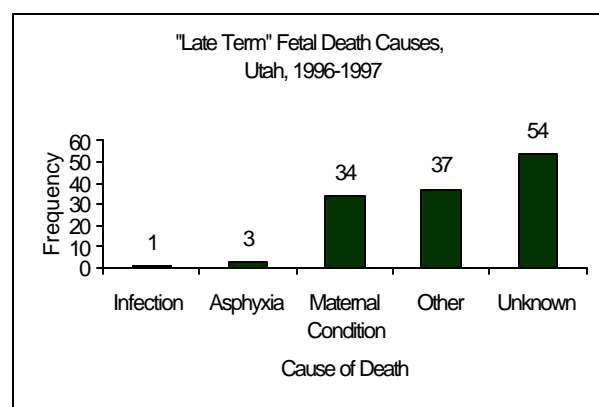


Figure 4**



**Source: Perinatal Mortality Review Program Databases, Utah Department of Health

The Perinatal Mortality Review Committee (PMRC) deliberated following review of each fetal death. Issues that may have contributed to the death were identified. The most frequently identified pregnancy related socio-demographic issue was a delay on the part of the mother

to seek care immediately when fetal movement was noted to be decreased or absent. This issue was identified in 52 of the 132 cases (39%). Other socio-demographic issues identified include: poverty (14.4%), unmarried status (12.3%), being uninsured (8.3%), and unintended pregnancy (8.3%). All of these are common risk factors for poor perinatal outcomes.

Pregnancy complications that may have contributed to the fetal deaths reviewed were also identified by the PMRC. Placental complications were identified in 36% of the cases reviewed, the most common of which were "abnormal placenta or cord"(n=23) and placental abruption (n=20). Other complications included insufficient weight gain during pregnancy (6.9%), pregnancy-induced hypertension (6.1%), gestational diabetes (5.3%), intra-uterine growth retardation (4.6%) and oligohydramnios (4.6%). Again, all are well-recognized risk factors for poor perinatal outcomes.

The PMRC identified medical care provider issues that may have contributed to the fetal death in many of the cases reviewed. These issues included delay/lack of diagnosis or treatment (9.2%), mismanagement (8.1%) and misdiagnosis (3.8%). In addition, only 20.5% of women who experienced a fetal death were referred to a specialist for care during their pregnancies.

During the development of the process for reviewing these fetal deaths, it became apparent that lack of information was a barrier. Many death certificates list "unknown" as the cause of death (Figure 4). Therefore, the committee decided to illustrate this critical issue by reporting on the lack of post-mortem assessment of fetal deaths. Components of a complete fetal death work-up include the following items: maternal history, family history, autopsy, x-rays, photos, cultures, karyotype, placental exam, maternal blood work (including toxoplasmosis, other viruses, rubella, CMV, herpes simplex viruses [TORCH], antiphospholipid antibodies/lupus anticoagulant [APLA/LAC], Kleihauer-Betke [KB], indirect coombs) and toxicology screen.⁵ Table 1 illustrates the number of cases in which post-mortem assessment was accomplished.

Review of fetal deaths is an ongoing responsibility of the PMRP. Development of public health interventions using PMRC recommendations is currently underway. It is hoped that these interventions will help to prevent these perinatal tragedies and promote healthy outcomes for pregnant women in Utah.

Table 1

Post-mortem assessment component	Frequency of occurrence (n=132)	Percent
Maternal history	90	68.2%
Family history	50	37.9%
Autopsy	36	27.3%
X-Rays	1	.8%
Photos	2	1.5%
Cultures	22	16.7%
Karyotype	13	9.8%
Placental Exam	65	49.2%
<u>Maternal Blood Work</u>		
TORCH	9	6.8%
APLA/LAC	8	6.1%
KB	15	3.8%
Indirect Coombs	5	3.8%
Tox Screen	6	4.5%

**Source: Perinatal Mortality Review Program Databases, Utah Department of Health

*PMRP is a process aimed at identifying and examining factors that contribute to perinatal deaths (fetal, infant and maternal) through the systematic evaluation of individual cases.

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